

DOW, LOHNES & ALBERTSON, PLLC
ATTORNEYS AT LAW

ORIGINAL

JENNIFER L. KEEFE
DIRECT DIAL 202-776-2721
jkeefe@dlalaw.com

WASHINGTON, D.C.
1200 NEW HAMPSHIRE AVENUE, N.W. • SUITE 800 • WASHINGTON, D.C. 20036-6802
TELEPHONE 202-776-2000 • FACSIMILE 202-776-2222

ONE RAVINIA DRIVE • SUITE 1600
ATLANTA, GEORGIA 30346-2108
TELEPHONE 770-901-8800
FACSIMILE 770-901-8874

EX PARTE OR LATE FILED
May 7, 1997

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VIA HAND DELIVERY

Mr. William F. Caton
Acting Secretary
Federal Communications Commission
1919 M Street, N.W., Room 222
Washington, D.C. 20554

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FEDERAL COMMUNICATIONS COMMISSION
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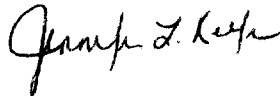
Re: **Ex Parte Presentation**
CC Docket No. 92-297

Dear Mr. Caton:

Pursuant to Section 1.1206 of the Commission's rules, Lockheed Martin Corporation hereby submits two copies of this transmittal letter and the attached written presentation to the Office of the Secretary for inclusion in the public record of the above-captioned proceeding. A copy of this *ex parte* submission is also being provided to the individuals listed on the attached service list.

Please contact me if any questions arise in connection with this matter.

Sincerely,



Jennifer L. Keefe
Counsel to Lockheed Martin Corporation

JLK/crd
Enclosure

cc: Attached Service List

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Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

RECEIVED
MAY - 7 1997
FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF SECRETARY

In the Matter of)
)
Rulemaking to Amend Parts 1, 2, 21,)
and 25 of the Commission's Rules to)
Redesignate the 27.5-29.5 GHz Frequency)
Band, to Reallocate the 29.5-30.0 GHz)
Frequency Band, and to Establish Rules and)
Policies for Local Multipoint Distribution)
Service and for Fixed Satellite Services)

CC Docket No. 92-297

To: The Commission

EX PARTE COMMENTS OF
LOCKHEED MARTIN CORPORATION

Lockheed Martin Corporation ("Lockheed Martin") respectfully requests that the Commission's forthcoming Ka-band service rules include specific procedures to ensure that the deployment of Ka-band services accurately reflects the NGSO/GSO allocation and licensing priorities established by the Commission. The need for comprehensive service rules is particularly important because U.S.-licensed Ka-band satellite networks will be a critical element of the global information infrastructure ("GII"). Accordingly, procedural and operational guidelines which will facilitate interference-free operation of these systems will speed their deployment and the expansion of the GII.

Lockheed Martin understands that Commission staff is considering adopting a requirement that Ka-band licensees seeking to operate in bands in which they have a secondary designation submit a prior technical showing for public notice, comment, and Commission approval as a precondition to receiving operational authority. This prior technical showing would be employed to protect primary services from harmful interference. In addition, Commission staff is considering applying the Ka-band service rules to be promulgated by the Commission to the operations of U.S. Ka-band licensees abroad. Lockheed Martin believes that such measures are essential to the effective deployment of Ka-band satellite systems and urges their adoption by the Commission.

Preliminary Statement

On September 28, 1995, Lockheed Martin filed an application with the Commission for authority to construct, launch, and operate the Astrolink^{TM/SM} system, a global constellation of nine geostationary communications satellites to be located in five orbital positions. Lockheed Martin also has participated actively in various FCC proceedings concerning the licensing of Ka-band satellite systems, including the development of the 28 GHz band plan, the adoption of orbital assignment plans to accommodate all GSO FSS systems, and cooperative efforts involving the international coordination of Ka-band systems. With the achievement of these and other important regulatory steps, the Bureau is now in a position to license all pending Ka-band satellite systems.

In these comments, Lockheed Martin addresses the licensing and operation of Ka-band satellite systems on a "secondary" basis in frequency bands where other satellite networks hold

a "primary" designation.¹ Though the Bureau has not yet issued the majority of the Ka-band satellite licenses, it decided that Ka-band satellite systems may rely on secondary status for the operation of essential system components.² This unexpected policy decision presupposes that all NGSO and GSO systems can operate simultaneously in the same frequency bands without causing harmful interference – something that Ka-band satellite applicants have almost universally agreed to be impossible with the existing or planned systems.

Lockheed Martin strongly supports the Commission's efforts to license Ka-band systems expeditiously and with the maximum degree of licensee flexibility that is consistent with interference protection. Moreover, Lockheed Martin will participate actively in pursuing technical solutions to the complex NGSO/GSO interference problems. Given the enormous investments necessary to launch and operate Ka-band systems and their promise as key elements of the universal GIL, both GSO and NGSO licensees need to know (a) that the systems they launch are not likely to receive harmful interference from secondary users; and (b) that if harmful interference occurs despite the Commission's best efforts, the secondary user will bear the full risk of eliminating the conflict both domestically and abroad.

Specifically, Lockheed Martin urges the Commission to take the following steps:

¹ Stations of a "secondary" service shall not cause harmful interference to stations of a primary service to which frequencies are already assigned or to which frequencies may be assigned at a later date; and they cannot claim protection from harmful interference from stations of a primary service to which frequencies are already assigned or to which frequencies may be assigned at a later date. See 4 CFR §2.106; see also ITU Radio Regulations, Article 8, §8 (4).

² See *In the Matter of Teledesic Corporation*, Order and Authorization, File Nos. 22-DSS-P/LA-94, 43-SAT-AMEND-95, 127-SAT-AMEND-95 (rel. March 14, 1997) (the "*Teledesic Order*"). The *Teledesic Order* authorizes Teledesic to operate its "gigalink" terminals on a secondary basis in the 27.6-28.4 GHz and 17.8-18.6 GHz frequency bands where GSO FSS systems will operate on a primary basis.

First, the Commission should adopt certain procedures to ensure that secondary GSO or NGSO users will not cause harmful interference to stations of a primary service. The Commission should also mandate that such requirements be satisfied *before* the deployment of secondary services in these frequency bands.

Second, recognizing that the NGSO/GSO sharing issues are complex and that even the most carefully designed sharing mechanism may fail, every Commission approval of a Ka-band secondary use should be explicitly conditioned on an absolute obligation by the secondary user to protect existing and future primary users. The condition should apply to all Ka-band FSS systems to the extent they operate in a particular band on a secondary basis.

Finally, the Commission should adopt service rules providing that licensing priorities applicable to the 28 GHz band plan domestically shall also apply to the operation of U.S.-licensed Ka-band satellites abroad.

I. The FCC Must Condition Secondary Operation on a Prior Technical Showing

The 28 GHz band plan reflects a compromise solution to accommodate the spectrum needs of four competing sectors: NGSO FSS systems; GSO FSS systems; Mobile Satellite Service ("MSS") feeder links; and Local Multipoint Distribution Service ("LMDS"). The plan, which was devised only after lengthy FCC proceedings, attempts to satisfy the spectrum needs of all four services through a combination of band segmentation and sharing. As such, the Commission's 28 GHz band plan has been widely regarded as even-handed and fair. Indeed, it is a carefully-crafted spectrum plan that balances the requirements of various systems to achieve an efficient, equitable allocation of Ka-band spectrum. As the Commission is aware, the designation of specific licensing priorities within each of the band

segments (i.e., "primary" or "secondary" designations) reflects a central feature of the overall 28 GHz band plan.

Lockheed Martin is concerned about the likely interference between GSO FSS systems and NGSO FSS systems operating in the same bands. Based on current technology, there is little confidence that the two systems can operate in the same bands without substantial harmful interference in both the uplink and downlink directions. In the case of NGSO systems, harmful interference would occur as each of the NGSO satellites transmitting to and receiving signals from a ground terminal passes through an uplink or downlink beam of a GSO FSS system. The interference would be sporadic in nature, and its duration would depend upon earth station locations, antenna beamwidths, general link characteristics, and operational parameters of both systems. The Commission has expressed the same concern regarding interference by GSO FSS systems to NGSO FSS systems that share operating bands.

Both NGSO FSS and GSO FSS system proponents urged the Commission to utilize band segmentation in the Ka-band in view of the potential for interference between the two types of systems. The 28 GHz band plan, which designates separate band segments for primary NGSO and GSO operations, plainly reflects these concerns. The licensing of secondary NGSO FSS operations in the primary GSO FSS band segments is premature, introducing risk and uncertainty for GSO FSS operators, just as the secondary licensing of GSO FSS systems in primary NGSO FSS bands may well raise similar concerns for NGSO FSS systems. For this reason, the Commission must adopt clear-cut procedures to ensure that secondary uses of these frequencies will not cause harmful interference to stations of a primary service.

While Lockheed Martin believes interference between NGSO and GSO systems operating in the same frequency bands will occur, individual licensees may believe they can deploy their systems on a secondary basis. While the Commission's decision to authorize NGSO and GSO systems in the same band will certainly stimulate a great deal of research on the subject, Lockheed Martin also believes the Commission should require any party proposing to deploy a secondary operation to file an accompanying technical showing to define precisely the measures that will be employed to protect primary services from interference. This technical showing should be required and subject to public comment *before* the deployment of any secondary use in the bands is authorized. All such showings should be placed on public notice, and the Commission should allow sufficient time for interested parties to comment. The Commission would authorize the secondary operation to commence only after it is satisfied that no harmful interference would occur to primary services in the affected bands.

The importance of a prior technical showing cannot be overemphasized in light of the serious interference probabilities. The authorization of services to operate in shared bands on a secondary basis only protects primary services from continuing interference, but does not protect primary systems from receiving the initial harmful interference. A primary service system will be subject to interference while the secondary and interfering system is being notified of the interference and while it is acting to cease the interference. Because this interference can disrupt a primary service's system for an unspecified amount of time, technical showings should be required and approved before secondary systems are authorized to operate. Nonetheless, as further stated below, after a technical showing is made and secondary operations are authorized, secondary systems are still subject to the general

obligations of secondary status. Ka-band operators are investing a substantial amount of resources in their systems, therefore the Commission should do its utmost to prevent harmful interference from secondary services.

II. FCC Approval of a Technical Showing Should Not Shield Secondary Users from Their Obligation to Mitigate Interference to Primary Users

The Commission's service rules, or the Ka-band licenses themselves, should plainly state that the required technical showing is only a *threshold* requirement to alleviate the substantial risk of harmful interference introduced by NGSO/GSO sharing. FCC clearance of a sharing proposal by a secondary licensee should *not* give the secondary user any rights whatsoever vis-a-vis primary users. Even the best system design may be incapable of eliminating actual interference, or the proposed interference mitigation techniques may fail under certain conditions. Consistent with sound policy and established precedent, if a secondary operation later causes interference to a primary service, it must still abide by the usual rules applicable to secondary status. It would be required, for example, to immediately cease operations upon notification of harmful interference into any service or system that has a superior licensing priority in the bands. Further, the threshold technical review procedures applicable to secondary status users should not alter the rights of primary systems to deploy earth stations in accordance with FCC regulations wherever commercially or technically advantageous.

III. Licensing Priorities Applicable to the 28 GHz Band Plan Domestically Should Also Apply to the Operation of U.S.-Licensed Satellites Abroad

Today's NGSO FSS and GSO FSS systems are global in nature and generally require access to common frequency bands worldwide. Indeed, the Commission and U.S. industry routinely press for global satellite allocations at the ITU. Now that the 28 GHz band plan has been adopted in the United States, the Commission staff is considering applying the same frequency plan, including specific licensing priorities (*i.e.*, "primary" and "secondary" designations), to the operation of U.S.-licensed satellites abroad. Lockheed Martin supports the adoption of such measures. Similarly, the threshold technical showing and remediation standards outlined above should expressly apply to the deployment of U.S. system components worldwide, wherever those components operate in a band designated secondary for that service by the 28 GHz band plan.

The Commission's staff is also considering appropriate measures for applying the 28 GHz band plan to U.S.-licensed satellite systems operating abroad. Lockheed Martin supports this FCC initiative and the specifics outlined by the staff and encourages an ongoing dialogue among the Commission and affected industry sectors on these important issues. All U.S.-licensed satellite systems must have access to needed spectrum on a regional or global scale, and they must be protected from harmful interference from other U.S.-licensed systems operating around the world. For these reasons, the Commission's Ka-band service rules

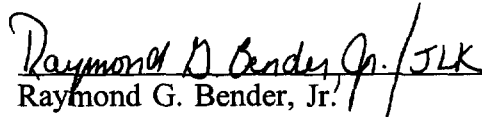
should govern the operations of U.S.-licensed Ka-band satellites in the United States and abroad.³

Respectfully submitted,

LOCKHEED MARTIN CORPORATION

Gerald C. Musarra
Senior Director, Commercial Policy
and Regulatory Affairs
Space and Strategic Missiles Sector
Lockheed Martin Corporation
1725 Jefferson Davis Highway
Arlington, VA 22202-4127

(703) 413-5600


Raymond G. Bender, Jr.
Carlos M. Nalda
DOW, LOHNES & ALBERTSON
1200 New Hampshire Avenue, N.W.
Washington, D.C. 20036

(202) 776-2000

Its Attorneys

John Hane
Lockheed Martin Telecommunications
Orgn. GS-01, Bldg. 551
1272 Borregas Avenue
Sunnyvale, CA 94089

(408) 543-3667

May 7, 1997

³ Since the Commission's service rules apply to the operation of U.S.-licensed space stations worldwide, the Commission has appropriate remedies at its disposal to ensure that U.S.-licensed satellite systems shall comply with FCC operational requirements.

CERTIFICATE OF SERVICE

I, Cynthia S. Shaw, a secretary at the law firm of Dow, Lohnes & Albertson, do hereby certify that a copy of the foregoing "*Ex Parte* Comments of Lockheed Martin Corporation" was mailed U.S. first class this 7th day of April 1997, to the following:

*The Honorable Reed E. Hundt
Chairman
Federal Communications Commission
1919 M Street, NW, Room 814
Washington, DC 20554

*The Honorable James H. Quello
Commissioner
Federal Communications Commission
1919 M Street, NW, Room 802
Washington, DC 20554

*The Honorable Susan Ness
Commissioner
Federal Communications Commission
1919 M Street, NW, Room 832
Washington, DC 20554

*The Honorable Rachelle B. Chong
Commissioner
Federal Communications Commission
1919 M Street, NW, Room 844
Washington, DC 20554

*Peter Cowhey
Chief, International Bureau
Federal Communications Commission
2000 M Street, NW, Room 827
Washington, DC 20554

*Ruth Milkman
Deputy Chief, International Bureau
Federal Communications Commission
2000 M Street, N.W., Room 827
Washington, D.C 20554

*Thomas S. Tycz
Chief, Satellite and Radio Communications
Division
International Bureau
Federal Communications Commission
2000 M Street, NW, Rm 811
Washington, DC 20554

*Steve Sharkey
Chief, Satellite Engineering Branch
Federal Communications Commission
2000 M Street, N.W., Room 500
Washington, D.C. 20554

*Jennifer Gilsenan
International Bureau
Federal Communications Commission
2000 M Street, NW, Room 511
Washington, DC 20554

*Harold Ng
International Bureau
Federal Communications Commission
2000 M Street, NW, Room 512
Washington, DC 20554

*Karl Kensinger
International Bureau
Federal Communications Commission
2000 M Street, N.W.
Room 512
Washington, D.C. 20554

*Cecily C. Holiday
International Bureau
Federal Communications Commission
2000 M Street, N.W., Room 520
Washington, D.C. 20554

*Fern J. Jarmulnek
Satellite Policy Branch
International Bureau
Federal Communications Commission
2000 M Street, N.W., Room 518
Washington, D.C. 20554

*Julie Garcia
Satellite & Radio Communications Division
International Bureau
Federal Communications Commission
2000 M Street, N.W., Room 506
Washington, D.C. 20554

Mr. Warren Richards
U.S. Department of State
2201 C Street, N.W.
4th Floor/CIP
Washington, D.C. 20520

Mr. William Hatch
NTIA
Department of Commerce
14th Street & Constitution
Avenue, N.W.
Washington, D.C. 20230

William D. Wallace
Crowell & Moring
1001 Pennsylvania Avenue, N.W.
Washington, D.C. 20004

William F. Adler
Vice President & Division Counsel
GLOBALSTAR
3200 Zanker Road
San Jose, CA 95134

Norman P. Leventhal
Raul R. Rodriguez
Stephen D. Baruch
Leventhal, Senter & Lerman
2000 K Street, N.W., Suite 600
Washington, D.C. 20006

Veronica M. Ahern, Esq.
Nixon, Hargrave, Devans &
Doyle, L.L.P.
One Thomas Circle, N.W., Suite 700
Washington, D.C. 20005

Mitchell Lazarus, Esq.
Arent, Fox, Kintner, Plotkin & Kahn
1050 Connecticut Ave., N.W., Suite 600
Washington, D.C. 20036-5339

Tom W. Davidson, Esq.
Akin, Gump, Straus, Hauer & Feld, L.L.P.
1333 New Hampshire Ave., N.W., Suite 400
Washington, D.C. 20036

Leonard Robert Raish, Esq.
Fletcher, Heald & Hildreth
1300 N. 17th Street, 11th Floor
Rosslyn, VA 22209-3801

Peter M. Connolly, Esq.
Koteen & Naftalin
1150 Connecticut Ave., N.W.
Washington, D.C. 20005

Joseph A. Godles, Esq.
W. Kenneth Ferree, Esq.
Goldberg, Godles, Winer & Wright
1229 19th Street, N.W.
Washington, D.C. 20036

John F. Beasley, Esq.
William B. Barfield, Esq.
BellSouth Corporation
1155 Peachtree Street, N.E.
Suite 1800
Atlanta, GA 30309-3610

William A. Graven, Esq.
Entertainment Made Convenient (Emc)
USA, Inc.
8180 Greensboro Drive
Suite 1000
McLean, VA 22102

Kristin A. Ohlson, Esq.
Pacific Telesis Wireless
Broadband Services
2410 Camino Ramon
Suite 100
San Ramon, CA 94583

John M. Schill
RioVision, Inc.
P.O. Box 1065
1800 East Highway 83
Weslaco, TX 78596

John G. Lamb, Jr., Esq.
Northern Telecom Inc.
2100 Lakeside Boulevard
Richardson, TX 75081-1599

Robert J. Miller, Esq.
Gardere & Wynne, L.L.P.
1601 Elm Street
Suite 3000
Dallas, TX 75201

Stephen L. Goodman, Esq.
Halprin, Temple, Goodman & Sugrue
1100 New York Avenue, N.W.
Suite 650, East Tower
Washington, D.C. 20005

Douglas Gray, Esq.
Microwave Communications Group
Hewlett-Packard Company
1501 Page Mill Road, 4A-F
Pal Alto, CA 94304

Frank Michael Panek, Esq.
Ameritech Services, Inc.
1000 W. Ameritech Center Drive
Room 4H84
Hoffman Estates, IL 60196

Cheryl A. Tritt, Esq.
Diane S. Killory, Esq.
Morrison & Foerster
2000 Pennsylvania Ave., N.W.
Suite 5500
Washington, D.C. 20006

J. Michael Rhoads, Esq.
M3 Illinois Telecommunications Corp.
P.O. Box 292557
Kettering, OH 45429

Richard S. Wilensky, Esq.
Middleberg, Riddle & Gianna
2323 Bryant Street
Suite 1600
Dallas, TX 75201

Harold K. McCombs, Jr.
Duncan, Weinberg, Miller & Pembroke
1615 M Street, N.W.
Suite 800
Washington, D.C. 20036

Marilyn Mohrman-Gillis, Esq.
Lonna M. Thompson, Esq.
Association of America's Public Television
Stations
1350 Connecticut Ave., N.W., Suite 200
Washington, D.C. 20036

Paula A. Jameson, Esq.
Gregory Ferenbach, Esq.
Public Broadcasting Service
1320 Braddock Place
Alexandra, VA 22314

Jeffrey A. Krauss, Ph.D.
Telecomm. & Tech. Policy
17 W. Jefferson Street
Suite 106
Rockville, MD 20850

Paul J. Sinderbrand, Esq.
Sinderbrand & Alexander
888 16h Street, N.W., 5th Floor
Washington, D.C. 20006-4103

C. Rowe, Esq.
New England Tel. & Tel. Co.
and New York Telephone
1111 Westchester Avenue
White Plains, NY 10604

John G. Raposa, Esq.
HQE3J27
GTE Service Corporation
P.O. Box 152092
Irving, TX 75015-2092

Gail L. Polivy, Esq.
GTE Service Corporation
1850 M Street, N.W.
Suite 1200
Washington, D.C. 20036

Daniel L. Brenner, Esq.
Loretta P. Polk, Esq.
National Cable Television
Association, Inc.
1724 Massachusetts Ave., N.W.
Washington, D.C. 20036

Doug Lockie
Endgate Corporation
321 Soquel Way
Sunnyvale, CA 94086

Al Shuldiner, Esq.
Vinson & Elkins
1455 Pennsylvania Ave., N.W.
Suite 700
Washington, D.C. 20004-1008

Philip Malet, Esq.
Panatellis Michaloupoulos, Esq.
Steptoe & Johnson
1330 Connecticut Ave., N.W.
Washington, D.C. 20036

John P. Janka, Esq.
Steven H. Schulman, Esq.
Latham & Watkins
1001 Pennsylvania Ave., N.W.
Suite 1300
Washington, D.C. 20004

Charles P. Fetherstun, Esq.
David G. Richards, Esq.
BellSouth Corp.
1133 21st Street, N.W.
Suite 900
Washington, D.C. 20036

Lon C. Levin, Esq.
American Mobile Satellite Corp.
10802 Parkridge Boulevard
Reston, VA 22091

Philip V. Otero, Esq.
Alexandria P. Humphrey, Esq.
GE American Communications
1750 Old Meadow Road
McLean, VA 22101

Judith R. Maynes, Esq.
Elaine R. McHale, Esq.
AT&T Corporation
295 N. Maple Avenue
Basking Ridge, NJ 07920

Peter A. Rohrbach, Esq.
Karis A. Hastings, Esq.
Hogan & Hartson
555 Thirteenth Street, N.W.
Washington, D.C. 20004

Julian L. Shepard, Esq.
Verner, Liipfert, Bernhard,
McPherson & Hand
901 15th Street, N.W.
Suite 700
Washington, D.C. 20005

Andrew D. Lipman, Esq.
Margaret M. Charles, Esq.
Swidler & Berlin, Chartered
3000 K Street, N.W.
Suite 300
Washington, D.C. 20007

Perry W. Haddon
Vice President
Ghz Equipment Company, Inc.
1834 E. Baseline Road
Suite 202
Tempe, AZ 85283-1508

Michael R. Gardner, Esq.
1150 Connecticut Ave., N.W.
Suite 710
Washington, D.C. 20036

Kathleen Q. Abernathy, Esq.
David A. Gross, Esq.
AirTouch Communications
1818 N Street, N.W.
Suite 800
Washington, D.C. 20036

Philip L. Verveer, Esq.
Andrew D'Uva, Esq.
Willkie, Farr & Gallagher
1155 21st Street, N.W.
Suite 600
Washington, D.C. 20036-3384

Leslie A. Taylor, Esq.
Leslie Taylor Associates
6800 Carlynn Court
Bethesda, MD 20817-9341

James G. Pachulski, Esq.
Bell Atlantic Telephone Companies
1320 North Court House Road
8th Floor
Arlington, VA 22201

Michael D. Kennedy, Esq.
Barry Lambergman, Esq.
Motorola, Inc.
1350 I Street, N.W.
Washington, D.C. 20006

James G. Ennis, Esq.
Patrick A. Mahoney, Esq.
Iridium, Inc.
1401 H Street, N.W.
Washington, D.C. 20005

James P. Noblitt
Vice President, General Manager
Boeing Defense & Space
Missiles & Space Division
P.O. Box 3999, MS 8C-30
Seattle, WA 96124-2499

Charles F. Newby
Vice President
Titan Information Systems
3033 Science Park Road
San Diego, CA 92121-1199

Richard H. Shay, Esq.
Orion Network Systems, Inc.
2440 Research Boulevard
Suite 400
Rockville, MD 20850

David G. O'Neil, Esq.
Rini Coran & Lancellotta, P.C.
1350 Connecticut Avenue, N.W.
Suite 900
Washington, D.C. 20036

Jeffrey H. Olson
Paul, Weiss, Rifkind, Wharton & Garrison
1615 L. Street, N.W.
Washington, D.C. 20036-5694

Daniel S. Goldberg, Esq.
Goldberg, Godles Wiener & Wright
1229 19th Street, N.W.
Washington, D.C. 20036

Antoinette Cook Bush
Jay L. Birnbaum
Skadden, Arps, Slate, Meagher & Flom
1440 New York Avenue, N.W.
Washington, D.C. 20005

Stuart F. Feldstein
Terri B. Natoli
Fleischman and Walsh, L.L.P.
1400 16th Street, N.W.
Washington, D.C. 20036

David Moskowitz, Esq.
Vice President and General Counsel
EchoStar Satellite Corporation
90 Iverness Circle East
Englewood, CO 80112

Frank Young, Esq.
Young & Jatlow
2300 N Street, N.W.
Washington, D.C. 20037

Charles Milkis, Esq.
Law Offices of Michael R. Gardner
1150 Connecticut Avenue, N.W.
Suite 710
Washington, D.C. 20036


Cynthia S. Shaw